

Trend Study 28-18-03

Study site name: Shakespeare Hollow.

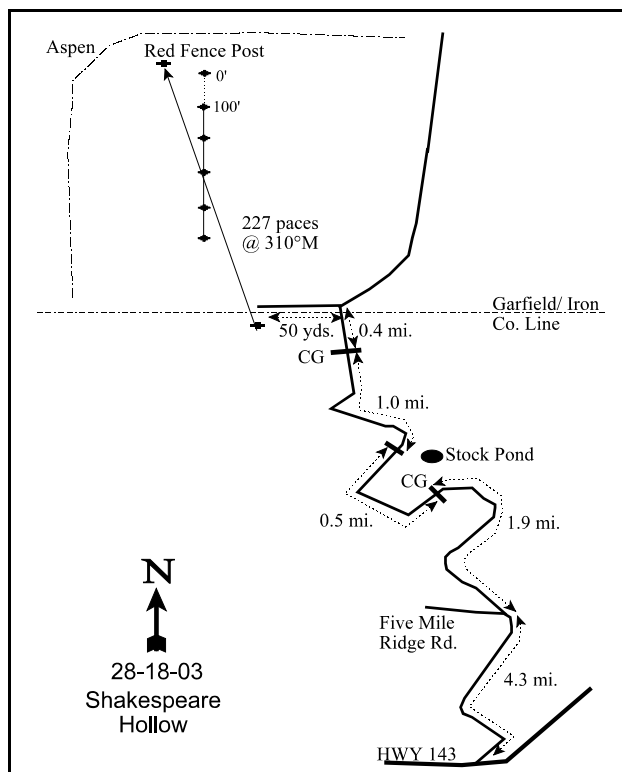
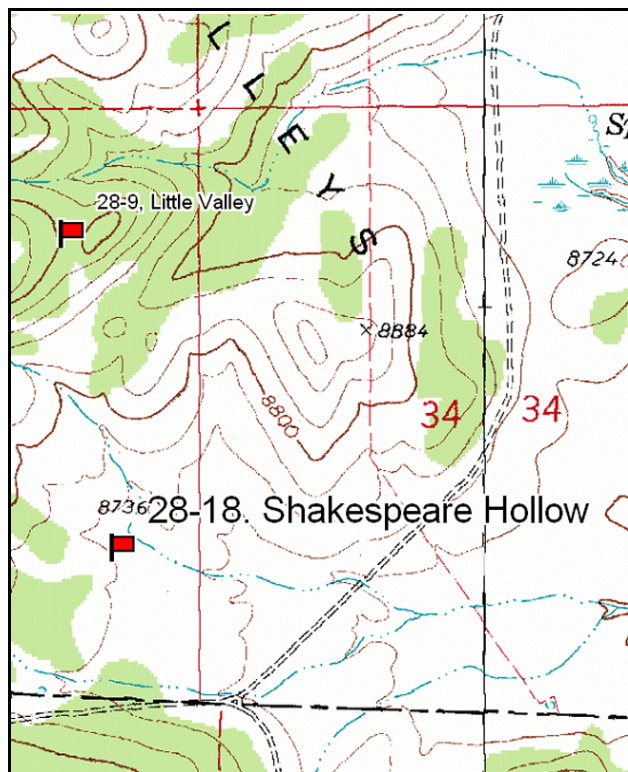
Vegetation type: Mountain Brush .

Compass bearing: frequency baseline 180 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft). Rebar: belt 1 on 5ft, belt 4 on 5ft.

LOCATION DESCRIPTION

From Panguitch, go south towards Panguitch Lake. At mile marker 41, turn right onto a dirt road. Proceed up Pole Hollow 4.3 miles to the Five Mile Ridge Road. Continue straight 1.9 miles to a cattleguard. Continue 0.5 miles to a cattleguard and stockpond. Continue 1.0 miles to another cattleguard. Go 0.4 miles to a fork at the Iron County-Garfield County line. Bear right, go 50 yards, and park by a witness post and aspen on the left side of the road (south). From the witness post, walk 227 paces at 310 degrees magnetic to another witness post. The 0-foot stake is west-southwest of the witness post.



Map Name: Red Creek Reservoir

Diagrammatic Sketch

Township 35S, Range 7W, Section 3

GPS: NAD 27, UTM 12S 4185721 N, 356083 E

DISCUSSION

Shakespeare Hollow - Trend Study No. 28-18

This study was established in 2003 to replace the Little Valleys transect (28-9) which no longer was representative of important summer range. The Little Valleys transect was placed inside a thick aspen clone with a very dense snowberry understory. The site received very little use by big game or livestock, and was difficult to sample due to the thick vegetation. This new study was placed about ½ mile south of the Little Valleys study and samples a mountain brush community surrounded by pockets of aspen. The new transect was left in the general area because of its importance to deer, elk, and sage grouse. The site slopes gently to the east (1-3%) at an elevation of 8,750 feet. Pellet group transect data collected on site in 2003 estimated 24 elk, 23 deer, and 16 cow days use/acre (60 edu/ha, 56 ddu/ha, and 39 cdu/ha). Deer and elk use appeared to be primarily from late spring and summer while cattle use was from the previous grazing season.

Soils are loam in texture and moderately acidic with a pH of 6.0. Soil depth is only fair with an effective rooting depth estimated at about 9 inches. Rock and pavement covered about 13% of the ground surface in 2003 and are distributed abundantly throughout the upper portions of the profile which limited deeper soil depth measurements. Pedestalling was evident around bunchgrasses and shrubs, but otherwise erosion was minimal in 2003. An erosion condition class assessment rated soils as stable in 2003.

Silver sagebrush and bitterbrush are the dominant browse species on the site as they contributed 83% of the total browse cover in 2003. Density of silver sagebrush was estimated at 6,400 plants/acre in 2003, with the majority of the population being classified as mature (80%). There were very few young in 2003 (1%) and decadence was fairly low at 19%. Silver sagebrush displayed mostly good vigor and light use. Seed production was high in 2003 for silver sagebrush and annual leaders averaged 1.4 inches of growth. Bitterbrush density was estimated at 1,000 plants/acre with a mostly mature population (90%). Decadence was low in 2003 at 8%, as was the number of young (2%). Eighty percent of the population displayed heavy use but vigor was normal and healthy on all plants sampled. The interior of some of the bitterbrush plants was partly unavailable since bitterbrush plants averaged just under 2 feet in height but averaged nearly 5 feet in width. Bitterbrush showed poor leader production overall, but leaders that could be found averaged 1.8 inches of annual growth. Other browse sampled on the site include Parry rabbitbrush, stickyleaf low rabbitbrush, and a few currant plants. About 1/3 of the Parry rabbitbrush population displayed moderate use in 2003.

The herbaceous understory is diverse and moderately abundant. Eight perennial grasses and 18 perennial forbs were sampled on the transect in 2003. Mutton bluegrass, needle-and-thread grass, and Letterman needlegrass were the most abundant grasses, while low fleabane, trailing fleabane, and redroot eriogonum were the most abundant forbs. Bottlebrush squirreltail and Kentucky bluegrass primarily grow underneath shrub crowns. Three species of annual forbs were also sampled, but all occur in low numbers. Utilization of grasses and forbs was low if any in 2003.

2003 APPARENT TREND ASSESSMENT

Soils appear to be stable with a moderate amount of vegetation and litter cover to protect against erosion. The browse component is comprised mainly of 2 co-dominants, silver sagebrush and bitterbrush. Trend for browse appears stable as both of the dominant species have low reproduction, but low decadence and good vigor. Bitterbrush is more preferred than silver sage, but as this is summer range and browse is not the most important component. The herbaceous component is evenly split between grasses and forbs and trend appears stable. The understory composition is good with few annuals being present. A decrease in browse cover and good grazing management should allow the understory to increase and remain diverse.

HERBACEOUS TRENDS --

Management unit 28 , Study no: 18

T y p e	Species	Nested Frequency	Average Cover %
		'03	'03
G	<i>Bouteloua gracilis</i>	10	.38
G	<i>Koeleria cristata</i>	38	.31
G	<i>Poa fendleriana</i>	214	5.05
G	<i>Poa pratensis</i>	8	.16
G	<i>Sitanion hystrix</i>	36	.37
G	<i>Stipa columbiana</i>	10	.21
G	<i>Stipa comata</i>	66	1.37
G	<i>Stipa lettermani</i>	63	1.00
Total for Annual Grasses		0	0
Total for Perennial Grasses		445	8.88
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F	<i>Achillea millefolium</i>	31	.13
F	<i>Agoseris glauca</i>	2	.00
F	<i>Antennaria rosea</i>	10	.09
F	<i>Artemisia dracunculus</i>	5	.38
F	<i>Artemisia ludoviciana</i>	79	.81
F	<i>Aster chilensis</i>	15	.10
F	<i>Calochortus nuttallii</i>	11	.03
F	<i>Collinsia parviflora</i> (a)	127	.63
F	<i>Delphinium nuttallianum</i>	4	.00
F	<i>Erigeron flagellaris</i>	79	1.05
F	<i>Erigeron pumilus</i>	133	2.11
F	<i>Eriogonum racemosum</i>	65	1.54
F	<i>Eriogonum umbellatum</i>	34	.56
F	<i>Microsteris gracilis</i> (a)	19	.06
F	<i>Penstemon</i> spp.	21	.16
F	<i>Potentilla</i> spp.	8	.10
F	<i>Senecio integerrimus</i>	3	.04
F	<i>Senecio multilobatus</i>	12	.05
F	<i>Sisymbrium altissimum</i> (a)	1	.00
F	<i>Tragopogon dubius</i>	20	.06
F	<i>Trifolium</i> spp.	21	.42
Total for Annual Forbs		147	0.69
Total for Perennial Forbs		553	7.69

T y p e	Species	Nested Frequency	Average Cover %
		'03	'03
Total for Forbs		700	8.39

BROWSE TRENDS --

Management unit 28 , Study no: 18

T y p e	Species	Strip Frequency	Average Cover %
		'03	'03
B	Artemisia cana	85	11.55
B	Chrysothamnus parryi	32	.74
B	Chrysothamnus viscidiflorus viscidiflorus	48	3.59
B	Gutierrezia sarothrae	2	-
B	Purshia tridentata	37	9.35
B	Ribes spp.	1	.01
Total for Browse		205	25.26

CANOPY COVER, LINE INTERCEPT --

Management unit 28 , Study no: 18

Species	Percent Cover
	'03
Artemisia cana	11.18
Chrysothamnus parryi	1.39
Chrysothamnus viscidiflorus viscidiflorus	3.75
Purshia tridentata	13.05
Ribes spp.	.11

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 28 , Study no: 18

Species	Average leader growth (in)
	'03
Artemisia cana	1.4
Purshia tridentata	1.8

BASIC COVER --

Management unit 28 , Study no: 18

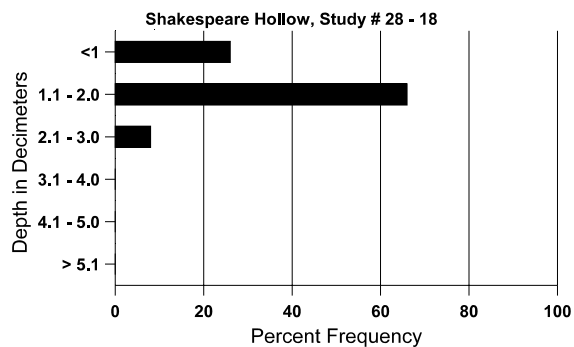
Cover Type	Average Cover % '03
Vegetation	39.65
Rock	9.71
Pavement	3.34
Litter	33.43
Cryptogams	.18
Bare Ground	30.55

SOIL ANALYSIS DATA --

Management unit 28, Study no: 18, Study Name: Shakespeare Hollow

Effective rooting depth (in)	Temp °F (depth)	pH	% sand	% silt	% clay	% OM	PPM P	PPM K	ds/m
8.9	63.2 (13.0)	6.0	44.7	32.0	23.3	3.3	30.0	787.2	0.5

Stoniness Index



PELLET GROUP DATA --

Management unit 28 , Study no: 18

Type	Quadrat Frequency '03	Days use per acre (ha) '03
Rabbit	2	-
Elk	8	24 (60)
Deer	17	23 (56)
Cattle	5	16 (39)

BROWSE CHARACTERISTICS --
Management unit 28 , Study no: 18

		Age class distribution (plants per acre)					Utilization				
Y e a r	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Artemisia cana											
03	6400	-	60	5100	1240	20	14	2	19	6	12/19
Chrysothamnus parryi											
03	1240	-	-	1160	80	-	32	2	6	0	8/10
Chrysothamnus viscidiflorus viscidiflorus											
03	3020	-	-	2700	320	-	0	0	11	3	13/15
Gutierrezia sarothrae											
03	60	-	-	60	-	-	0	0	-	0	6/6
Purshia tridentata											
03	1000	-	20	900	80	-	20	80	8	0	21/59
Ribes spp.											
03	20	-	-	20	-	-	0	0	-	0	32/24
Symphoricarpos oreophilus											
03	0	-	-	-	-	-	0	0	-	0	15/18